

REMARKS

Favorable reconsideration and allowance of this application are requested.

1. Discussion of Amendments

In the definition of R¹, R² and R³ "may be branched" has been replaced by "is branched", "may be substituted" has been replaced by "is unsubstituted or substituted", "other" before "azyl substituents" has been deleted, "it being possible for the stated radicals" has been deleted and "R¹, R² and/or R³ optionally to be" has been replaced by "R¹, R² and/or R³ are optionally".

In the definition of R⁴ and R⁵ "may be" has been replaced by "is" and "other" before "aryl substituents" has been deleted.

Under b) in claim 33 "water or another solvent capable of dissolving, dispersing, suspending or emulsifying the polymer" has been replaced by "water or another solvent which dissolves, disperses, suspends or emulsifies the copolymer".

Under c) in claim 33 "where appropriate, further" has been replaced by "optionally" and the colon at the end of c) has been replaced by a comma and "and".

The amendments mentioned above have been carried out to address the objections of the Examiner under 35 USC §112, second paragraph.

Further, at the end of claim 1 the phrase "at least one acid or one alkali metal or alkaline earth metal salt of said acid selected from the group consisting of phosphoric acid, sulphuric acid, sulfonic acid, formic acid, acetic acid, nitric acid, hydrofluoric acid, and hydrochloric acid, as component F" has been added. This amendment is based on the disclosure in claim 37 of the set of claims as filed as well as on the disclosure on page 18, lines 12 to 15 of the specification.

Claim 33 also includes the expression that the composition may alternatively include "zinc cations in the case that the metal surfaces are metal surfaces comprising zinc or zinc alloys". This terminology is based on the specification at page 5, line 7, wherein it is noted that the metal surface may comprise zinc or zinc alloys. It is clear for a person skilled in the art that a metal surface comprising zinc or zinc alloys which comes into contact with the composition comprising components A, B and optionally C will comprise zinc cations, because the compositions are acidic and dissolve a certain amount of the zinc of the metal surface in the form of zinc cations.

Claims 34 and 35 remain unamended.

In claim 36 "where appropriate" has been replaced by "optionally" and under d) a phrase has been deleted, starting with, "preferably" and ending with "imidazole". Such subject matter cancelled from claim 36 now forms the basis of new claims 52 and 53.

In claim 37 "where appropriate" has been replaced by "optionally". Further, "D" has been replaced by "at least one nitrogen base as component D". Further, under g), i) and h) "further" has been deleted.

The paragraph f) and the following text thereof beginning with "at least one acid" and ending with "as component F" has been deleted since such subject matter now appears in the amended version of claim 33.

Since "D" has been deleted in claim 37 and replaced by "at least one nitrogen base as component D", the subject matter of the nitrogen base has been added in new claims 54 and 55.

In claim 38 "polymer" has been replaced by "copolymer" and "(component A)" has been deleted.

In claims 41 and 48 "according to" has been replaced by "as defined in" to make it more clear that the composition referenced in such claims is in fact the composition of claim 33.

In claims 43, 44, 50 and 51 "and further" has been replaced by "and one or more further" This amendment has been carried out to meet the objections of the Examiner under 35 USC § 112, second paragraph.

Additionally, in claims 43 and 50 "claims" has been replaced by "claim".

Therefore, following entry of this amendment, claims 33-55 will remain pending here for consideration.

2. Response to 35 USC §112 Issues

The amendments and comments above are believed to address the Examiner's rejections advanced under 35 USC §112, second paragraph. Accordingly, withdrawal of such rejections is in order.

With respect to the issue advanced under 35 USC §112, first paragraph, applicants did not find the reference to oxides and hydroxides as salts in the specification as asserted by the Examiner. Specifically, in paragraph [0040] of the published application, it is stated that "As component Aa it is preferred to use acrylic and/or methacrylic acid." However, depending on the metal, oxides and hydroxides are salts. As such, applicants suggest that the rejection advanced under 35 USC §112, first paragraph should be withdrawn.

3. Response to 35 USC §103(a) Issues

Prior claims 33-51 attracted a rejection under 35 USC §103(a) as allegedly being unpatentable over Schwartz et al (US 2002/0146515). In addition, claims 33-37 attracted a rejection under 35 USC §103(a) as allegedly being unpatentable over each

of Denzinger et al (USP 5,175,361) and Kirk et al (USP 5,601,723). Applicants respectfully suggest that the rejections advanced under 35 USC §103(a) are inappropriate against the claims now pending herein for consideration.

3.1 *The Claimed Invention*

According to the amended set of claims presented above, the present invention concerns a composition comprising at least one copolymer as component A comprising a specific amount of (meth)acrylic acid or salts thereof as component Aa, a specific amount of a carboxylate-containing monomer of formula (1) as component Ab1 and optionally a specific amount of monomers containing groups containing phosphoric and/or phosphonic acid or salts thereof as component Ab2, and optionally further comonomers as component Ac. Further, the compositions according to amended claim 33 of the present invention comprise water or another solvent as component B, optionally surface-active additives, dispersants, suspension agents and/or emulsifiers as component C, and the composition according to amended claim 33 further comprises at least one acid or alkali metal or alkaline earth metal salts of said acid selected from the group consisting of phosphoric acid, sulfuric acid, sulfonic acid, formic acid, acetic acid, nitric acid, hydrofluoric acid and hydrochloric acid, as component F or zinc cations in the case that the metal surfaces are metal surfaces comprising zinc or zinc alloys.

The compositions according to the present invention are suitable for treating metal surfaces (see claim 33). It is an object of the present invention to provide compositions for treating metal surfaces that are suitable for forming a passivating layer on the metal surfaces (page 3, lines 1, 2). The copolymers in the composition are completely hydrophilic copolymers (page 5, lines 1, 2).

Since the composition of the present invention is suitable for forming a passivating layer, according to claims 38 and 39, a specific passivating layer is claimed, according to claim 40 a specific surface is claimed, according to claim 43 a specific

system on a metal surface comprising a passivating layer X and one or more further coating films Y is claimed. Furthermore, in the other claims pending herein, additional specific layers or systems are defined as well as processes for the preparation of such layers and systems.

It can be seen from the examples in the present application, that the specific passivating layers according to the present invention show superior stability over a long time (see page 34, table 2 of the present application).

3.2 US 2002/0146515 A1 (Schwartz et al.)

According to Schwartz et al aqueous compositions are disclosed comprising at least one aqueous polymer dispersion whose addition polymer P contains in copolymerized form a specific amount of at least one monoethylenically unsaturated *hydrophobic* monomer A, a specific amount of at least one ethylenically unsaturated monocarboxylic or dicarboxylic acid or its anhydride as monomer B and optionally further ethylenically unsaturated monomers C as well as at least one divalent metal cation in water-soluble form (column 1, paragraphs [0012] to [0017]).

A particular preferred monomer A is methylmethacrylate (page 2, paragraph [0024]). A particular preferred monomer B is acrylic acid or methacrylic acid (page 2, paragraph [0026]). Further, the compositions according to Schwartz et al. comprise at least one divalent metal cation in water-soluble form. According to paragraph [0038] complexing agents (solubilizing ligand) are added to the salts. One suitable solubilizing ligand is pyrophosphoric acid.

The aqueous compositions according to Schwartz et al. are distinctly different from the compositions according to the present invention. First, component A is not *acrylic acid* but a *hydrophobic* monomer, especially methylmethacrylate. This hydrophobic monomer A used according to Schwartz et al. is completely different from

the hydrophilic methacrylic acid or acrylic acid used as component Aa in the present application. As mentioned in the specification of the present application, the copolymers used in the compositions of the present invention are completely hydrophilic copolymers (page 5, lines 1, 2 of the present application).

Further, the copolymer according to Schwartz et al. does not optionally contain phosphoric acid, but according to paragraph [0038] pyrophosphoric acid may be used as complexing agent but not as further monomer.

Since the copolymer disclosed in Schwartz et al. comprises 80 to 99.5 % by weight of at least one monoethylenically unsaturated, *hydrophobic* monomer A and the copolymer A according to the present application comprises 50 to 99.9 % by weight of *hydrophilic* (meth)acrylic acid or acrylic acid as component Aa, the copolymers according to the present application are patentably distinct from the compositions disclosed in Schwartz et al. Therefore, the compositions claimed herein are also patentably distinct over the compositions disclosed in Schwartz et al.

There is no suggestion or contemplation in Schwartz et al. that ***completely hydrophilic copolymers*** may be useful for treating metal surfaces and suitable for forming a passivating layer on the metal surfaces.

The present invention according to the amended set of claims is therefore not obvious over Schwartz et al. Withdrawal of the rejection advanced under 35 USC §103(a) based on Schwartz et al is therefore in order.

3.3 USP 5,1 75,361 (Denzinger et al) and USP 5,601, 723 (Kirk et al.)

Denzinger et al. as well as Kirk et al. disclose a process for the preparation of copolymers of monoethylenically unsaturated monocarboxylic acids and dicarboxylic acids as copolymerized monomer units (column 2, lines 3 to 12 in Denzinger et al. and column 2, lines 34 to 62 in Kirk et al.).

The polymers according to Denzinger et al. and Kirk et al. are used as scale inhibitors (see column 1, lines 61 in Denzinger et al. as well as column 8, line 58 to column 9, line 19 in Kirk et al.).

There is no information to use the copolymers according to Denzinger et al. or according to Kirk et al. in compositions suitable for treating metal surfaces by forming a passivating layer on the metal surfaces.

To make clear that the compositions according to the present invention are suitable for forming a passivating layer on the metal surfaces and are different from the compositions according to Denzinger et al. and Kirk et al. the compositions according to the amended set of claims presented above comprise beside components A, B and optionally C a further component F which is at least one acid or one alkali metal or alkaline earth metal salt of said acid selected from the group consisting of phosphoric acid, sulphuric acid, sulfonic acid, formic acid, acetic acid, nitric acid, hydrofluoric acid and hydrochloric acid. These recited acids are suitable for preparing a passivating layer on metal surfaces as can be seen in the examples of the present application, wherein the composition for the preparation of a passivating layer comprises HNO_3 (page 33, line 30 of the present application).

The compositions according to Denzinger et al. and Kirk et al. do not comprise at least one acid or one alkali metal or alkaline earth metal salt of said acid mentioned as component F in amended claim 33 of the present application.

Since the compositions according to Denzinger et al. and Kirk et al. are used in a completely different field than the compositions according to the present invention, there is no information in Kirk et al. and Denzinger et al. that compositions comprising the components mentioned in amended claim 33 may be useable for forming a passivating layer on metal surfaces.

Moreover, since Denzinger et al and Kirk et al do not concern compositions suitable for treating metal surfaces by forming a passivating layer on the metal surfaces and the polymers according to Denzinger et al and Kirk et al are used as scale inhibitors (see column 1, line 61 in Denzinger et al as well as column 8, line 58 to column 9, line 19 in Kirk et al), neither Denzinger et al nor Kirk et al concern compositions comprising zinc cations which are formed by treating metal surfaces comprising zinc or zinc alloys as defined by the amended claim 33.

The present invention according to the amended set of claims is therefore not obvious over either one of Denzinger et al. or Kirk et al. Withdrawal of the rejections advanced under 35 USC §103(a) is therefore likewise in order.

4. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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